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DR. ARTHUR M. PARDEE, professor of chemistry at Tarkio College, has been appointed professor of chemistry at Washington and Jefferson College, Washington, Pa.

THE following appointments have been made in the engineering departments at Lafayette College: H. S. Rogers, of the faculty of the University of Washington, has been appointed assistant professor of civil engineering; Ralph S. Wilbur, a graduate of Tufts College and a former member of the faculty at Iowa State University, more recently employed by the Ford Instrument Company, has been appointed assistant professor of mechanical engineering; H. M. Spandau, of Whitman College, Washington, has been made assistant professor in engineering drawing. Charles A. Aey, professor in physics at Allegheny College last year, has been appointed instructor in physics; Landon A. Sarver, a private in the Chemical Gas Warfare Service, and former instructor in chemistry at the Johns Hopkins University, has been appointed instructor in the department of chemistry; Walter G. Kleinspehn, a graduate of Lafayette, '18, is also an instructor in chemistry.

DR. H. H. HODGSON has been appointed head of the department of coal-tar color chemistry instituted two years ago at the Huddersfield Technical College to provide specialized chemical teaching with research facilities for the sudden influx of chemists caused by the great development of the color industry in Huddersfield. Dr. Hodgson has for nearly three years been chief chemist to one of the largest firms of chemical manufacturers in England. He was previously head of the chemical department at the Northern Polytechnic Institute in London.

#### DISCUSSION AND CORRESPONDENCE

SHALL WRITERS UPON THE BIOLOGICAL SCIENCES AGREE TO IGNORE SYSTEMATIC PAPERS PUBLISHED IN THE GERMAN LANGUAGE SINCE 1914?

IN a footnote appended to one of his latest papers, which appeared in the *Proceedings of*

*the Zoological Society of London*, April, 1918, p. 55, Sir George F. Hampson says: "No quotations from German authors published since 1914 are included. '*Hostes humani generis*.'"

In the columns of *Nature*, issued September 5, 1918, Lord Walsingham, using the above footnote as his text, suggests that "for the next twenty years, at least, all Germans will be relegated to the category of persons with whom honest men will decline to have any dealings," and proposes that scientific men throughout the world shall by common consent agree to ignore all papers published in the German language, not as a measure of "vengeance," but as a measure of "justice." He adds that the truly scientific German, whose labors are worthy of consideration, and who is actuated by sincere love of truth, ought to feel it no hardship to publish the results of his researches in English or French periodicals, especially in the view of the fact that educated Germans are all more or less familiar with these languages.

In justification of his position Lord Walsingham points out the fact, which he, as one of the foremost entomologists of the world, is better able to aver than those less erudite, that in the "Catalogue of the Palearctic Lepidoptera," published in 1871 by Staudinger & Wocke, "precedence is improperly but deliberately assigned to German names in preference to earlier ones given by French authors"; and he also recalls the persistent manner in which the representatives of German scientific societies at the meeting of the International Zoological Congress at Monaco in 1913 attempted to dominate the discussions, and to insist that German usage in matters of nomenclature should receive universal sanction "to the exclusion of all attempts to trace out the literary history of each species and to preserve for it the name bestowed by the first author who described or figured it." The writer of these lines, who was a member of the First International Entomological Congress which met in Brussels in 1910, recalls quite vividly that the same pushing tendencies and arrogance were also displayed on that occasion by certain of the German delegates.

To the searcher for truth for truth's sake it has been for many years both amusing and irritating to observe the manner in which even in scientific circles Teutonic megalomania has been growing by leaps and bounds. German conceit, originally engendered by the easy victory over France in the Franco-Prussian War, and fostered by subsequent German commercial success and prosperity, spread rapidly from political and military circles into the ranks of scientific investigators. A gullible world, easily duped, accepted the pretensions of these alleged "supermen," not only in the fields of war and mercantile industry, but also in the fields of science. The uninformed and unreflecting attributed to German *sitzfleisch* the honors which belong to *esprit*, mistaking assiduity for genius. Perhaps the most wofully deceived person was the German himself, who, contemplating the results of his compilatory labors, exclaimed after the manner of little Jack Horner "What a Big Boy am I!"

The writer of this note is to a certain extent in sympathy with his two learned friends, Hampson and Walsingham, and at future international congresses is prepared to vote heartily, should they make the motion, for the exclusion of the "Berliner Geck" from gatherings in which said "Geck" may rise and attempt to air himself and his opinions. He has, however, a conviction that in future assemblages of this sort there will be less manifestation of the Prussian spirit than there has been in the recent past. Events are so shaping themselves that our friends, "the supermen," will be inclined to take a position more nearly in accord with the facts of the universe in which they and we live.

The writer, however, can not unqualifiedly give in his adhesion to the proposal to ignore the work of Teuton naturalists unless published in English or French. While it is true that the value of the work done by Germans in many fields has been ridiculously overestimated, nevertheless there is a certain body of men in Germany—unless they have been shot off in recent battles—whose work is worthy of respect. These men naturally write in German. It is their mother tongue, and there are,

or used to be, a host of periodicals open to them. If by chance some of them should erect a genus, or describe a species having validity, according to the inexorable "law of priority" the names given by them will have to stand in the future literature of science, and it will not mend matters to pass resolutions declaring that only papers published in English and French shall be taken into consideration by systematic workers. This war is not going to last forever. We hope that Prussian militarism and despotism will vanish from the world, as other nightmares have vanished in the past. We trust that a full atonement for political and military crimes will be exacted. We expect that sanity will return after a while to German crania, and that megacephalic symptoms (they call the disease "big-head" in Kentucky) will abate, and that peace will return to this war-worn world. When that time comes, we will have, to quote Lord Walsingham himself, "to trace out the literary history of each species, and to preserve for it the name bestowed by the first author who described or figured it." It will then not matter whether he was English, French, American, Japanese, or German. It will be, just as it has been in the past, a matter of purely historico-scientific interest. English men of science recognize to-day the scientific names given by Frenchmen who applied them at a time when England was at war with France. English men of science and American men of science will do the same thing in the case of names given by Germans with whose despotic and autocratic powers we are now at war.

The writer loathes despotism and conceit and ignorance and cruelty. The loathing he feels for these things, however, does not blind him to the eternal verities. The essence of science is truth. He can not conceive how scientific truth can be advanced by a resolution that its utterance shall be confined to the English and French languages, though he prefers these languages to German and Choctaw. The adoption of the proposal made by Lord Walsingham would conduce to that state of affairs which he reprobates in the case of Staudinger & Wocke's "Catalogue." Science

in fact is international and universal. There is not an English entomology, nor a French paleontology, any more than there exists a Roman Catholic algebra or a Presbyterian geometry. We certainly have provocation, but the test of our scientific fitness is found in our ability to avoid the mistake of attempting to beat the Prussian by Prussianizing ourselves.

W. J. HOLLAND

CARNEGIE INSTITUTE,  
October 18, 1918

#### THE FOUNDATIONS OF MECHANICS

MR. PAUL J. FOX, in his comments<sup>1</sup> on our article of August 2d seems to us to be mistaken in two particulars. Surely to *identify* a force, so that the same force can be reproduced at will and caused to act at one time on one body and at another time on another body, is not the same thing as to *measure* the force. If we are to compare the accelerations of different bodies due to a given force, some basis of identification of the force is necessary; for example, it may be the force which will produce a certain stretch of a given spring. To identify a force, or a temperature, is not the same thing, by any means, as to measure the force or temperature.

If Mr. Fox will read our article carefully he will see that we do not even imply that the quantitative idea of mass is necessary for either the identification of measurement of force. Every physicist knows, and knew long before Perrin's time, that a rigorous quantitative definition of force is possible in terms of stretched springs without assuming Hooke's law. But no one, perhaps, has ever measured a force in this way, and by *measuring* we do not refer to any kind of thinking nor to any mathematical operation, much as we love both of these categories; we mean a laboratory operation (troublesome though such things be), and especially we mean a laboratory operation which gives an invariant result irrespective of special properties of particular substances and independently of time and place.

Perhaps our deeper source of confusion may

be, as Mr. Fox says, "in not making a distinction between mechanics as a 'doctrinal function' and as an experimental science." But we do not believe it; and for Mr. Fox to borrow the term in mild ostentation from Bertrand Russell leaves us unimpressed. Surely it is no mark of fixity of ideas on our part not to take Bertrand Russell over-seriously even in doctrinal mechanics and to always attend carefully to what has been said by Newton and Thomson and Tait, and Larmor.

Our mathematicians are rightly interested in the invariance of all kinds of functions with respect to a wide variety of transformations, and the physicist has seen many remarkable applications of this sort of invariance, the most remarkable of all being the recent generalized form of the principle of relativity; but the mathematician does not seem to understand that there is a kind of mathematics involved in the always more or less idealized operations and transformations of the laboratory with their amazing groups of invariances. Indeed, when we read such passages as the following from Mr. Fox's communication, fear that our mathematicians may never be able to fathom the deeper phases even of doctrinal physics—for the whole of the logical structure of the physical science is, let us borrow the phrase from Bertrand Russell, doctrinal.

"Thus it is clear that the units we have in the Bureau of Standards need not be the same as the undefined elements in the doctrinal function. We do not need even to imagine that Bureau keeping standard springs, rubber bands, strong armed men, etc., any more than it would keep a standard point (!) instead of a standard meter, for Veblen's system of geometry. Any equation may be made use of to measure any quantity which it contains." Mr. Fox, further on, quotes Frederic Soddy's statement that "the conception of force and its pseudo physical reality undoubtedly delayed for centuries the recognition of the law of the conservation of energy, etc.," and states that there seems to a certain mysticism in Soddy's contention. Not at all. Let Mr. Fox read and digest the remarkable appendix on The Scope of Mechanical Explanations in Larmor's

<sup>1</sup> SCIENCE, October 4, 1918.